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#### **Published**

With international search report.

(54) Title: AIR INTERFACE CAPACITY SCHEDULING METHOD

#### (57) Abstract

The invention relates to a method for scheduling air interface capacity between user services in a radio system, and to a radio transmitter using the method. The method comprises the following steps: (602, 604, 606) defining a nominal service bit rate, a nominal capacity of the service, and an effective coding rate of the service; (608) scheduling air interface frame capacity between at least two different services: computing the bit rate of the first service by multiplying the nominal capacity of the first service by the effective coding rate of the first service, and adding to this normal bit rate of the first service the borrowed extra capacity of at least one other service, and the bit rate obtained from the extra capacity is computed by multiplying a predetermined amount of the nominal capacity of the other service by the effective coding rate of the first service.

600 START

602 DEFINING NOMINAL SERVICE BITRATE AS A BITRATE Z BEFORE CHANNEL CODING AND OPTIONAL SERVICE SPECIFIC RATE MATCHING

604 DEFINING NOMINAL CAPACITY OF THE SERVICE AS A BITRATE Y AFTER CHANNEL CODING AND OPTIONAL SERVICE SPECIFIC RATE MATCHING

606 DEFINING EFFECTIVE CODING RATE OF THE SERVICE AS R = Z/Y

608 SCHEDULING AIR INTERFACE FRAME CAPACITY BETWEEN AT LEAST TWO DIFFERENT SERVICES: FOR THE FIRST SERVICE K:

-K

<sup>R</sup>K<sup>Y</sup>K

N ERKPJYJ OF AT LEAST ONE OTHER SERVICE JAK.

WHERE PJ  $\in$  [0.1] IS THE USED % OF YJ. N IS THE NUMBER OF BORROWING SERVICES. M IS THE TOTAL AMOUNT OF SERVICES, N<M

AND FOR EACH OTHER SERVICE J:

٠, ٢

R<sub>J</sub>(1-P<sub>J</sub>) Y<sub>J</sub>

610 END

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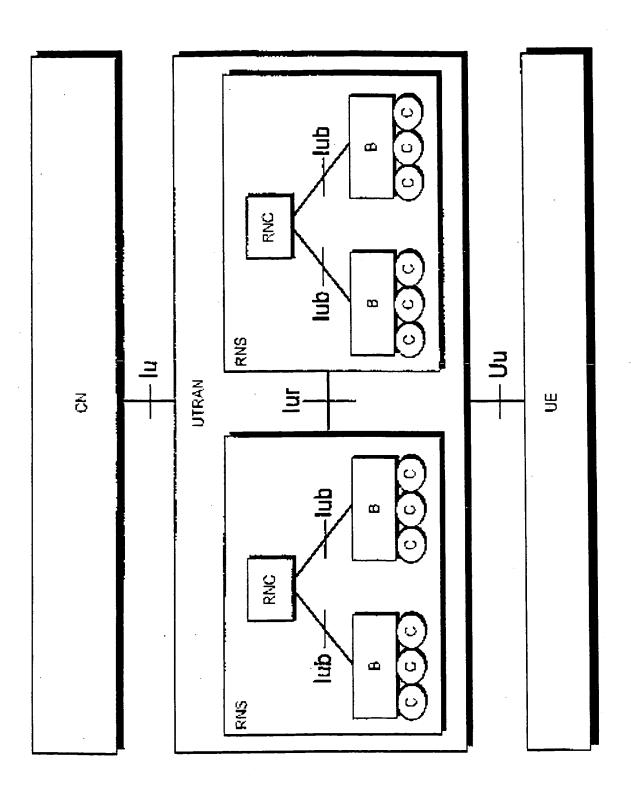
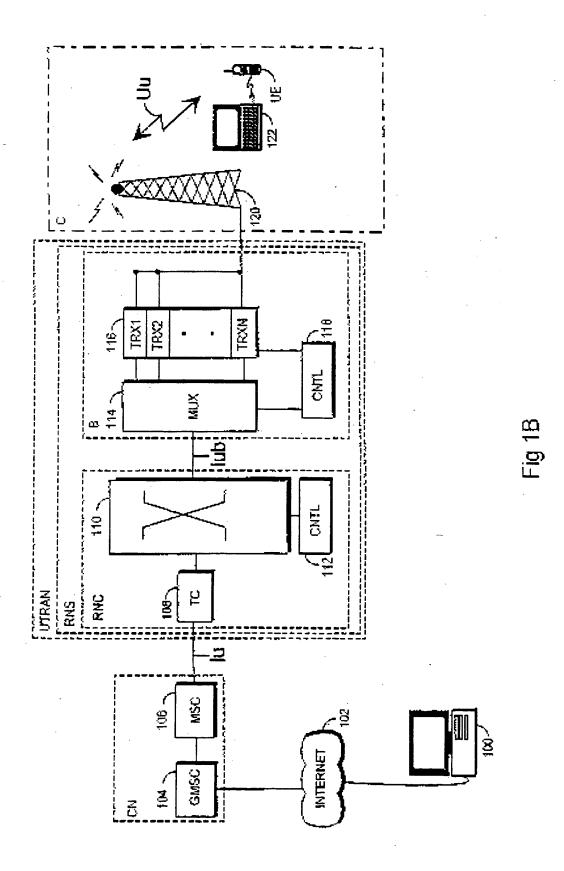
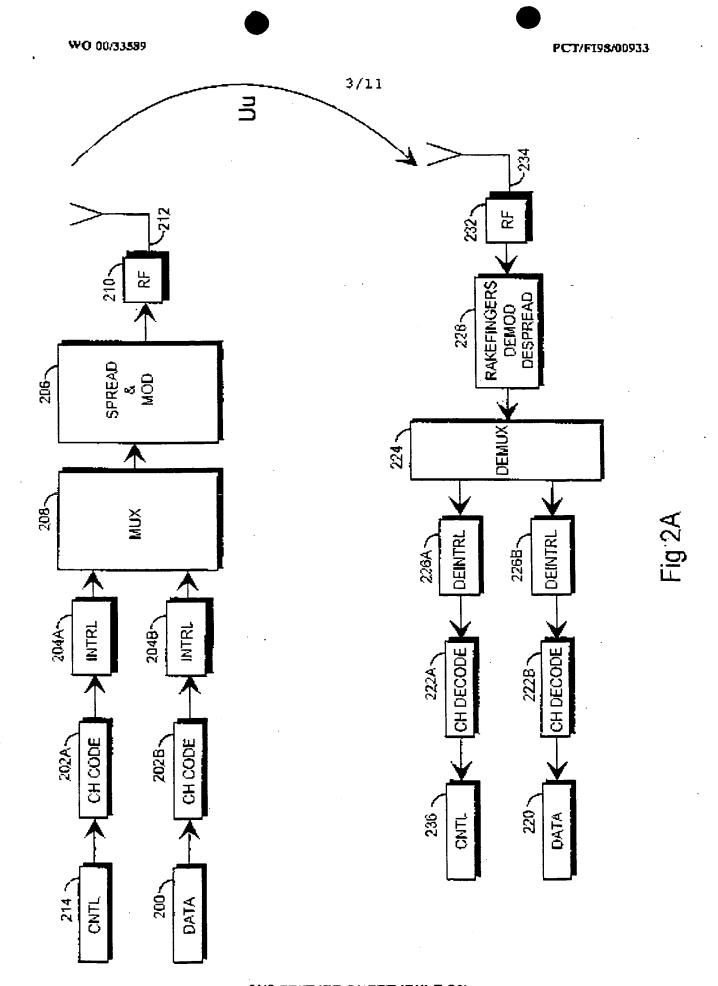


Fig 1A



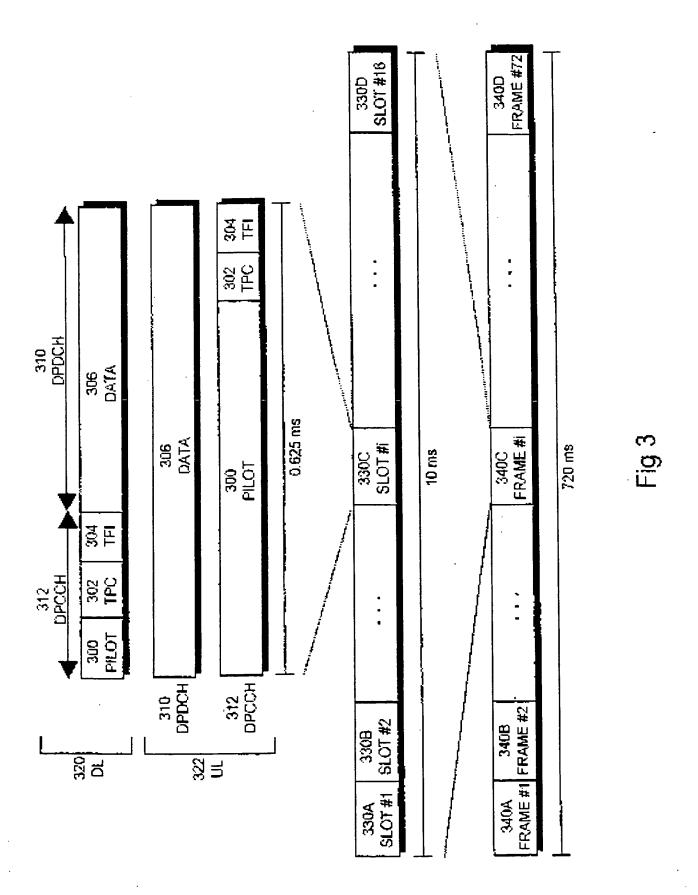
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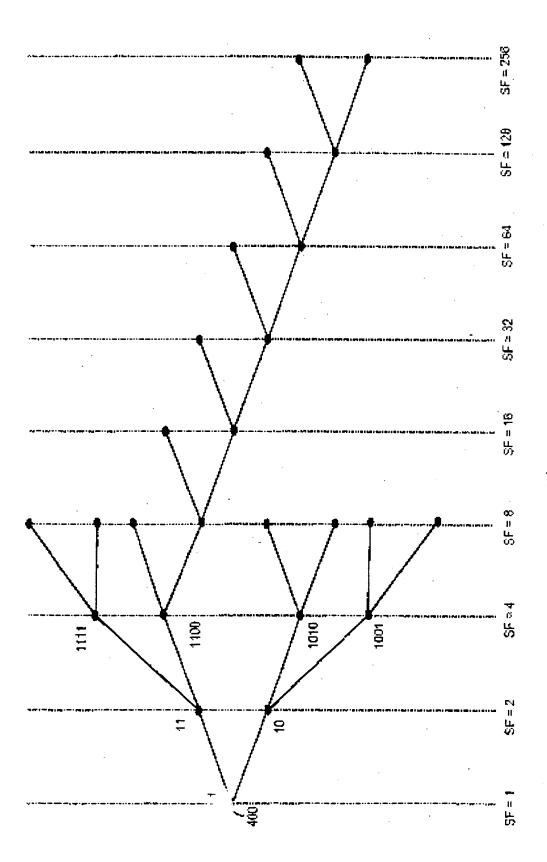
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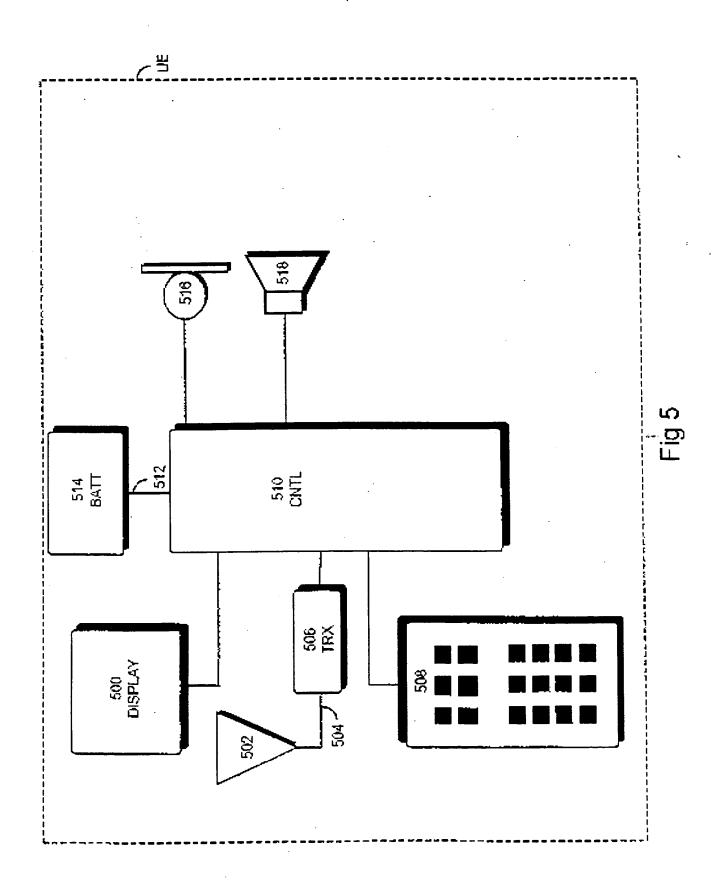
Fig 2B



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600 START

602 DEFINING NOMINAL SERVICE BITRATE AS A BITRATE Z BEFORE CHANNEL CODING AND OPTIONAL SERVICE SPECIFIC RATE MATCHING

604 DEFINING NOMINAL CAPACITY OF THE SERVICE AS A BITRATE Y AFTER CHANNEL CODING AND OPTIONAL SERVICE SPECIFIC RATE MATCHING

606 DEFINING EFFECTIVE CODING RATE OF THE SERVICE AS R = 2/Y

608 SCHEDULING AIR INTERFACE FRAME CAPACITY
BETWEEN AT LEAST TWO DIFFERENT SERVICES:
FOR THE FIRST SERVICE K:

$$R_K Y_K$$

 $\sum_{J=1}^{N} R_{K}^{} P_{J}^{} Y_{J}^{}$  of at least one other service J+K,

WHERE P<sub>J</sub>  $\in$  [0,1] IS THE USED % OF Y<sub>J</sub>, N IS THE NUMBER OF BORROWING SERVICES, MIS THE TOTAL AMOUNT OF SERVICES, N<M

AND FOR EACH OTHER SERVICE J:

$$Z_{J} =$$

 $R_{J}(1-P_{J}) Y_{J}$ 

Fig 6

610 END

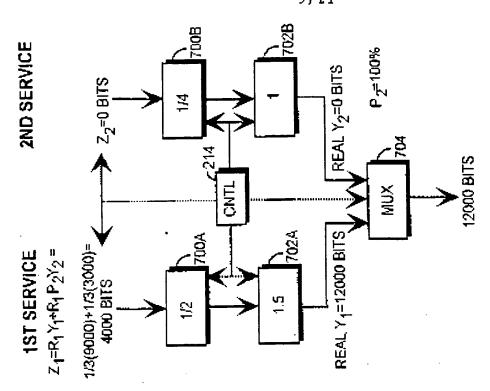


Fig 7B

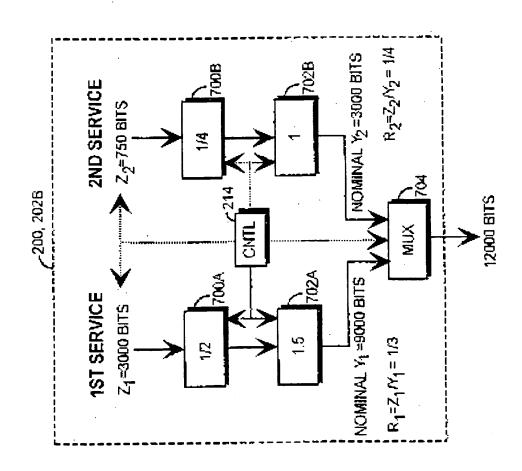
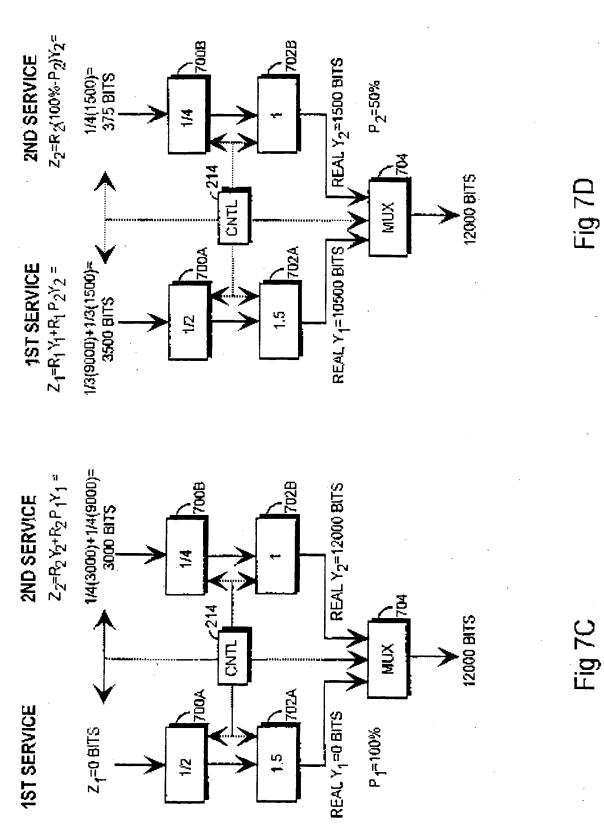
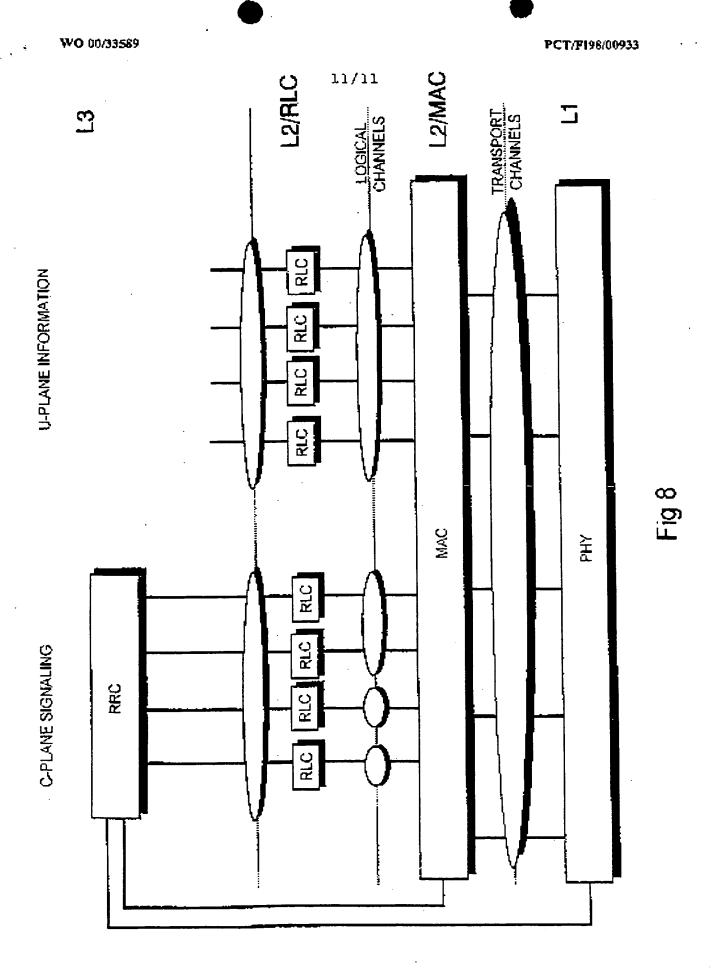


Fig 7A

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